

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

**UNITED STATES PATENT AND TRADEMARK OFFICE**

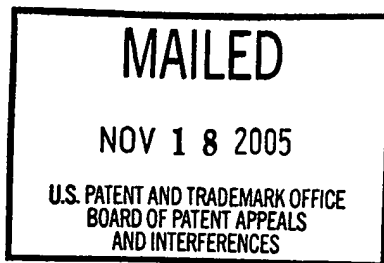
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte Ronald LOUIS QUAGLIA, JAMES LEROY SWAYZE,  
FANG CHEN and YITZONG CHERN

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Appeal No. 2005-1880  
Application No. 10/065,471

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ON BRIEF

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Before FRANKFORT, NASE, and BAHR, Administrative Patent Judges.  
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 2, 6, 8, 9 and 13. Claims 3 to 5, 7 and 10 to 12, which are all of the other claims pending in this application, have been withdrawn from consideration.

We REVERSE.

BACKGROUND

The appellants' invention relates to a brake assembly with noise damping and, more particularly, to a brake assembly including a tuned mass damper located inside of a hole formed in a brake component such as a backplate (specification, p. 1). A copy of the dependent claims under appeal is set forth in the appendix to the appellants' brief. Claims 1 and 8, the independent claims on appeal, read as follows:

1. A backplate for mounting a brake pad of a vehicle disk brake, the backplate having at least one hole formed therein and a tuned mass damper having a mass disposed within the hole for damping vibrations associated with the operation of the vehicle disk brake and an air gap disposed between at least one surface of the tuned mass damper and the hole.
8. A brake assembly comprising:
  - a brake pad operative to apply a braking force to a brake rotor, said brake pad being subject to vibration during braking;
  - a backplate attached to the brake pad, said backplate having a hole formed therein; and
  - a tuned mass damper having a mass disposed within the hole in the backplate and attached to the backplate for damping vibrations associated with operation of the brake assembly;wherein an air gap is disposed between at least one surface of the tuned mass damper and the hole.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Stacy	3,198,294	Aug. 3, 1965
Matsuzaki	4,691,810	Sept. 8, 1987
Heppes et al. (Heppes)	6,193,024	Feb. 27, 2001

Claims 1, 2, 8 and 9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Heppes.

Claims 1 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Stacy.

Claims 6 and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Heppes or Stacy in view of Matsuzaki.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the final rejection (mailed December 8, 2004) and the answer (mailed March 22, 2005) for the examiner's complete reasoning in support of the rejections, and to the brief (filed February 7, 2005) and reply brief (filed May 25, 2005) for the appellants' arguments thereagainst.

#### OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the

respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). In other words, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. Scripps Clinic & Research Found. v. Genentech Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. See In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

**The anticipation rejection based on Heppes**

We will not sustain the rejection of claims 1, 2, 8 and 9 under 35 U.S.C. § 102(b) as being anticipated by Heppes.

Heppes' invention concerns a damping plate, especially for vehicle brakes, that reduces wear and increases the precision in displacing the pressure point. The exemplary embodiments in the figures show some of the possibilities for designing areas with different degrees of resilience in the pressure-transferring surface of a damping plate 1 according to Heppes' invention. The pressure-transferring surface 2 is annular in all examples, but it is also possible for the pressure-transferring device 2 to be a solid surface and the brake piston/caliper 3 to have complete contact. In addition, the shape of the pressure-transferring surface 2 is not limited to a circle; any suitable shape can be used such as a rectangle. It is important that the pressure surface of the brake piston/caliper 3 not extend beyond the outer edge of the damping plate 1 to avoid any geometric displacement of the pressure point. The damping plates 1 are made of at least one metal plate and are preferably coated with rubber on at least one side. The pressure-transferring surface 2 can be on the rubber-coated side or on the other side. In the figures, the damping plate 1 is on one side of a base plate 4 and a brake lining 5 is on the other side of the base plate 4.

In the third embodiment of Heppes' invention depicted in Figures 14, 15a and 15b, the damping plate 1 is provided with radial cut-outs 17 which are adjacent in a row running peripherally in relation to the annular section. There is a radial material strip 18 between two neighboring cut-outs. In this exemplary embodiment, the top of the strip 18 is flush with the top of the non-cut-out area of the pressure-transferring surface 2 so that the pressure-applying unit 3 contacts the pressure-transferring surface 2 at least in sections when pressure starts to be applied that is distributed across its entire pressure surface. As can be seen in Figures 15a and 15b, the cut-outs can penetrate just one part of the thickness of the damping plate. The cut-outs can also completely penetrate to form small passages in the damping plate 1. When the cut-outs only extend partially through the thickness of the damping plate, they can also be on the side facing away from the pressure-applying unit 3.

In this anticipation rejection (final rejection, pp. 2-3), the examiner stated:

In reference to claim 1, Heppes et al teaches a backplate (1) for mounting a brake pad of a vehicle disk brake, the backplate having at least one hole (17) formed therein and a tuned mass damper having a mass (18) disposed within the hole and an air gap disposed between at least one surface of the tuned mass damper and the hole.

...

In reference to claim 8, Heppes et al provides an apparatus comprising: a brake pad (5) operative to apply a braking force to a brake rotor, said brake pad being subject to vibration during braking; a backplate (1) connected to the brake

pad, said backplate having a hole (17) formed therein; and a tuned mass damper (18) disposed substantially within the hole in the backplate and connected to the backplate for damping vibrations associated with operation of the brake assembly, wherein an air gap is disposed between at least one surface of the tuned mass damper and the hole.

The appellants argue (brief, pp. 4-6; reply brief, pp. 2-3) that Heppes does not disclose a backplate having a tuned mass damper as claimed since the radial material strip of Heppes does not move, and thus it cannot possibly provide any dampening effect or act as a tuned mass damper.

The examiner responds to this argument (answer, pp. 3-4) by asserting that the radial material strip 18 inherently functions as a tuned mass damper. The examiner notes that a mass placed on an object in a system that undergoes vibration, affects the damping properties of that object.

In our view, the examiner has not established that Heppes' radial material strip 18 inherently functions as a "tuned mass damper," which is, in our view, a term of art defining specific structure. In that regard, the extrinsic evidence of record does not make it clear that the claimed "tuned mass damper" is readable on<sup>1</sup> Heppes' radial

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<sup>1</sup> The inquiry as to whether a reference anticipates a claim must focus on what subject matter is encompassed by the claim and what subject matter is described by the reference. As set forth by the  
(continued...)

material strip 18 and that it would be so recognized by persons of ordinary skill. It is our opinion that since Heppes' radial material strip 18 is flush with the top of the non-cut-out area of the pressure-transferring surface 2 so that the pressure-applying unit 3 contacts the radial material strip 18, the radial material strip 18 would not act as "tuned mass damper" for damping vibrations associated with operation of the brake assembly.

For the reasons set forth above, claims 1 and 8 are not anticipated by Heppes. Accordingly, the decision of the examiner to reject claims 1 and 8, and claims 2 and 9 dependent thereon, under 35 U.S.C. § 102(b) as being anticipated by Heppes is reversed.

#### **The anticipation rejection based on Stacy**

We will not sustain the rejection of claims 1 and 8 under 35 U.S.C. § 102(b) as being anticipated by Stacy.

Stacy's invention is directed to brake shoe fasteners. Figures 1 and 2 depict a brake shoe 10 comprising a backing plate 11 on which is mounted a removable brake

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<sup>1</sup>(...continued)  
court in Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984), it is only necessary for the claims to "'read on' something disclosed in the reference, i.e., all limitations of the claim are found in the reference, or 'fully met' by it."



lining 12 by studs 15. The brake lining 12 comprises a backup plate 21 and blocks 22 of suitable braking or friction material. A rubberlike pad 20 is provided between the backing plate 11 and the backup plate 21. In the embodiment shown in Figures 7 and 8, the backup plate 21" is provided with a plurality of cup shaped studs 39 which extend into bores 16' of the backing plate 11. Each of the studs 38 has a rear wall provided with a transverse slot 39 and a groove 40 that extends at right angles to slot 39. Backup plate 21" is secured to the backing plate 11 by a plurality of fasteners each of which comprises a Belleville spring 41 having a central hole through which a rotatable fastener extends. The rotatable fastener comprises a slotted head 42 adapted to be rotated by a screwdriver and a T-shaped portion 43 adapted to be inserted through slot 39 and turned 90 degrees so as to seat in groove 40. The bias of springs 41 forces backup plate 21" against pad 20, and the backup plate 21" is free to move inwardly and outwardly due to the resilient suspension thereof between the pad 20 and springs 41.

In this anticipation rejection (final rejection, pp. 3), the examiner stated:

In reference to claim 1, Stacy teaches a backplate (11) for mounting a brake pad (20) of a vehicle disk brake, the backplate having at least one hole (17) formed therein and a tuned mass damper having a mass (42) disposed within the hole and an air gap disposed between at least one surface of the tuned mass damper and the hole.

In reference to claim 8, Stacy provides an apparatus comprising: a brake pad (20) operative to apply a braking force to a brake rotor, said brake pad being subject to vibration during braking; a backplate (11) connected to the brake pad,

said backplate having a hole (17) formed therein; and a tuned mass damper (42) disposed substantially within the hole in the backplate and connected to the backplate for damping vibrations associated with operation of the brake assembly, wherein an air gap is disposed between at least one surface of the tuned mass damper and the hole.

The appellants argue (brief, pp. 7-8; reply brief, pp. 5-6) that Stacy does not disclose a tuned mass damper disposed in a backplate hole for damping vibrations as set forth in claims 1 and 8.

The examiner responds to this argument (answer, pp. 3-4) by asserting that the claimed functionality (i.e., tuned mass damper) is inherent to the design of Stacy. The examiner notes that "[e]lement (42, the screw) has a mass and is mounted on a spring member (41)" and that "spring mass members are generally what defines a tuned mass damper."

In our view, the examiner has not established that Stacy's fastener (comprised of a slotted head 42 and a T-shaped portion 43) mounted on Belleville spring 41 inherently functions as a "tuned mass damper." In that regard, the extrinsic evidence of record does not make it clear that the claimed "tuned mass damper" is readable on Stacy's fastener (comprised of a slotted head 42 and a T-shaped portion 43) mounted on Belleville spring 41 and that it would be so recognized by persons of ordinary skill. It is

our opinion that Stacy's fastener (comprised of a slotted head 42 and a T-shaped portion 43) mounted on Belleville spring 41 does not constitute a "tuned mass damper." In that regard, while the bias of Belleville spring 41 forces backup plate 21" against pad 20, and the backup plate 21" is free to move inwardly and outwardly due to the resilient suspension thereof between the pad 20 and Belleville spring 41, this does not constitute a teaching of a "tuned mass damper" for damping vibrations associated with operation of the brake assembly.

For the reasons set forth above, the decision of the examiner to reject claims 1 and 8 under 35 U.S.C. § 102(b) as being anticipated by Stacy is reversed.

### **The obviousness rejections**

We will not sustain the rejection of dependent claims 6 and 13 under 35 U.S.C. § 103 as being unpatentable over Heppes or Stacy in view of Matsuzaki for the reasons set forth above with respect to their parent claims 1 and 8.<sup>2</sup>

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<sup>2</sup> We have reviewed the patent to Matsuzaki additionally applied in this rejection but find nothing therein which makes up for the deficiency of Heppes discussed above.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 2, 8 and 9 under 35 U.S.C. § 102(b) as being anticipated by Heppes is reversed; the decision of the examiner to reject claims 1 and 8 under 35 U.S.C. § 102(b) as being anticipated by Stacy is reversed; and the decision of the examiner to reject claims 6 and 13 under 35 U.S.C. § 103 as being unpatentable over Heppes or Stacy in view of Matsuzaki is reversed.

REVERSED

  
CHARLES E. FRANKFORT  
Administrative Patent Judge

  
JEFFREY V. NASE  
Administrative Patent Judge

  
JENNIFER D. BAHR  
Administrative Patent Judge

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